

*Botanica Complutensis* 37: 53-56. 2013  
[http://dx.doi.org/10.5209/rev\\_BOCM.2013.v37.42269](http://dx.doi.org/10.5209/rev_BOCM.2013.v37.42269)

ISSN: 0214-4565

## *Acalypha carrascoana* Cardiel (*Euphorbiaceae*) novelty for the flora of Mexico

José María Cardiel and Pablo Muñoz-Rodríguez<sup>1</sup>

**Abstract:** Cardiel, J. M. & Muñoz-Rodríguez, P. 2013. *Acalypha carrascoana* Cardiel (*Euphorbiaceae*) novelty for the flora of Mexico. *Bot. Complut.* 37: 53-56.

*Acalypha carrascoana* Cardiel, only known from Colombia and Venezuela, is reported in Mexico, thus presenting a disjunct distribution. Comments on the systematic of related species of *Acalypha* section *Sclerolobae* Müll. Arg. are included. An identification key to the species of this section is also provided.

**Key words:** *Acalypha*, *Euphorbiaceae*, Mexico, disjunction, species identification.

**Resumen:** Cardiel, J. M. & Muñoz-Rodríguez, P. 2013. *Acalypha carrascoana* Cardiel (*Euphorbiaceae*) novedad para la flora de México. *Bot. Complut.* 37: 53-56.

*Acalypha carrascoana* Cardiel, conocida solo de Colombia y Venezuela, se cita por primera vez para México, presentando así una distribución disyunta. Se aportan comentarios sistemáticos sobre las especies afines de *Acalypha* sección *Sclerolobae* Müll. Arg. y se incluye también una clave de identificación de las especies de esta sección.

**Palabras clave:** *Acalypha*, *Euphorbiaceae*, México, disyunción, identificación de especies.

### INTRODUCTION

*Acalypha* L. is the third largest genus in the *Euphorbiaceae* family (after *Euphorbia* L. and *Croton* L.). It comprises about 500 mainly pantropical species of small trees, shrubs or herbs, some of which reach temperate regions. America is home to almost two thirds of the species, from southeastern Canada and United States to Uruguay and northern Argentina. They thrive in a wide variety of habitats, from tropical rainforests to subdesertic areas, and from sea level up to 4000 m of altitude (Cardiel & Muñoz 2012). We are conducting a thorough study of the genus, mainly in the Neotropical region, and we have reviewed a large number of collections held in several European and American herbaria. As a result of this work, various floristic treatments and national checklists, as well as the description of several new species, have been published. Our aim, in the long term, is to review the genus within the whole Neotropical region, and to prepare the *Acalypha* treatment for Flora Neotropica. All the

information gathered about the genus is also available online in the regularly updated “*Acalypha* Taxonomic Information System” website (Cardiel *et al.* 2013).

*Acalypha* is poorly known in Mexico despite this country is the main center of diversity of the genus. Up to 126 species have been reported, 74 of which are endemic (Martínez-Gordillo *et al.* 2002, Steinmann 2002). *Acalypha carrascoana* was described in base to specimens from Colombia and Venezuela, inhabiting relatively dry areas near the Caribbean coast (Cardiel 1995a). Later on, we found another collection from Margarita Island, Venezuela (Cardiel 1999), also linked to dry habitat. This species is also cited in several floristic treatments and checklist (Cardiel 1995b, c, 1999; Govaerts *et al.* 2000; Murillo 2004; Levin 2008).

### RESULTS

While reviewing the Mexican collections of *Acalypha* we found one, from Michoacan State, which is clearly

<sup>1</sup> Departamento de Biología, Facultad de Ciencias, Universidad Autónoma de Madrid. Ciudad Universitaria de Cantoblanco, E-28049, Madrid, Spain. [jm.cardiel@uam.es](mailto:jm.cardiel@uam.es)

Recibido: 7 febrero 2013. Aceptado: 5 abril 2013.



Fig. 1– Mexican specimen of *Acalypha carrascoana* (R. McVaugh 17895, NY).

coincident with *A. carrascoana* (Fig. 1). This collection was made in the foothills of the Sierra Madre del Sur, about 300 m above sea level, in sparse woodlands on old lava flows. According to the data collection it is a locally abundant species. Thereby *A. carrascoana* shows a disjunct distribution in Mexico and northern South

America (Fig. 2). This is not an unusual situation. Examples of disjunctions of taxa in Mexico and South America are quite well documented (e.g. Solbrig 1972, Simon *et al.* 2011), also in the Euphorbiaceae family (Martínez-Gordillo & Morrone 2005, van Ee & Berry 2011). Regarding to *Acalypha*, the distribution of *A.*



Fig. 2– Distribution map of *Acalypha carrascoana*. ●, known localities. ★, new record.

*glandulosa* Cav. follows a similar pattern. This species was described from Central Mexico (Guanajuato State) in the early nineteenth century and we located several populations in the Cordillera Oriental of the Colombian Andes (Cardiel 1992).

Although the infrageneric classification of *Acalypha* is far from being satisfactory (see comments in Cardiel,

1995c), we can include *A. carrascoana* in section *Sclerolobae* Müll. Arg., belonging to series *Pantogynae-Acrogynae* Müll. Arg of subgenus *Acalypha*, according Pax & Hoffmann (1924). This section is quite well morphologically characterized and includes herbaceous species with terminal and axillary female inflorescences, axillary male inflorescences, and female bracts with long, linear-subulate teeth, usually more than  $\frac{1}{2}$  of the bract length. Pax & Hoffmann (1924) included five species in this section: *Acalypha polystachya* Jacq., *A. subcastrata* Aresch., *A. caroliniana* Elliot (= *A. ostryfolia* Riddel), *A. setosa* A. Rich. and *A. persimilis* Müll. Arg. (= *A. ostryfolia* Riddel). Cardiel (1995) described two new species here included in this section: *A. schultesii* and *A. carrascoana*. All of them are American plants that altogether extend from the southeast United States to northwest of South America (Colombia, Venezuela, Ecuador and Peru). These species are often misidentified, even in several regional floristic treatments, and they need a thorough review (Cardiel & Muñoz in preparation). We offer now a key to help their identification.

#### KEY TO THE SPECIES OF *ACALYPHA* SECTION *SCLEROLOBAE*

1. Female bracts with glandular hairs ..... 2
1. Female bracts without glandular ..... 6
  
2. Seeds rugose, not foveolate, 2.5-3 × 2-2.5 mm ..... 3
2. Seeds smooth, minutely foveolate, 1.2-1.4 × 0.8-1 mm ..... 4
  
3. Capsule smooth. Female bracts with 7-12 linear or filiform teeth to 1.3 mm long..... *A. polystachya*
3. Capsule tuberculate. Female bracts with 13-17 lanceolate teeth less than 0.5 mm long ..... *A. ostryaefolia*
  
4. Ovary hispid. Stipules to 5 mm long, with rigid hairs to 1.5 mm long ..... *A. schultesii*
4. Ovary glabrous. Stipules minute, 1-1.5 mm long, without rigid hairs ..... *A. subcastrata*
  
5. Bracts with hispidulous teeth. Ovary and capsule glabrous or nearly glabrous ..... *A. carrascoana*
5. Bracts with glabrous teeth. Ovary and capsule hispidous ..... *A. setosa*

*Acalypha carrascoana* Cardiel, *Anales Jard. Bot. Madrid* 52: 153, fig. 1, 1994

**Studied specimens:** **COLOMBIA:** CESAR, LA PAZ, 14 Sep 1938, *O. Haught* 2333 (COL, F, GH, NY US) [Type specimen]. **VENEZUELA:** Guarico, 10 km NW of Altagracia de Orituco, 440 m, 18 Nov 1973, *G. Davidse* 4177 (MO, VEN). NUEVA ESPARTA, ISLA MARGARITA, 850 m, Aug 1955, *A.L. Bernardi* 2496 (NY). **MEXICO:** MICHOACÁN, old lava flows 4 miles northwest of Apatzingán, among broken rocks in sparse woodlands of *Cordia*, *Amphipterygium*, *Apoplanesia*; ca. 300 m, 16 Sep 1958, *R. McVaugh* 17895 (G, MICH, NY).

#### ACKNOWLEDGEMENTS

This work was partly financed by the Spanish Government, through the research project EUI 2008-0388. Also by the Universidad Autónoma de Madrid (Spain) and the Regional Government (Comunidad de Madrid), through the research project CCG07-UAM/AMB-1453. We kindly thank the curators and staff of the aforementioned herbaria for facilitating the study of their specimens.



## BIBLIOGRAPHY

- CARDIEL, J. M. 1992. *Acalypha glandulosa* Cav. (*Euphorbiaceae*), novedad para la flora colombiana. *Anales Jard. Bot. Madrid* 50(2): 262-264.
- CARDIEL, J. M. 1995a. Las especies herbáceas de *Acalypha* (*Euphorbiaceae*) de Colombia. *Anales Jard. Bot. Madrid* 52(2): 151-157.
- CARDIEL, J. M. 1995b. Cristales foliares en *Acalypha* L. (*Euphorbiaceae*). *Anales Jard. Bot. Madrid* 53(2): 181-189.
- CARDIEL, J. M. 1995c. *Acalypha* (*Euphorbiaceae*). *Flora de Colombia*. Monografía n° 15. Universidad Nacional de Colombia y Real Jardín Botánico de Madrid.
- CARDIEL, J. M. 1999. Contribuciones a la flora de Venezuela: revisión del género *Acalypha* (*Euphorbiaceae*). *Acta Bot. Venez.* 22(2): 255-324
- CARDIEL, J. M. & MUÑOZ, P. 2012. Synopsis of *Acalypha* (*Euphorbiaceae*) of Continental Ecuador. *PhytoKeys* 17: 1-17.
- CARDIEL, J. M.; P. MUÑOZ; E. DORDA & PARDO DE SANTALLANA, M. 2013. *Acalypha Taxonomic Information System*, <http://www.acalypha.es>.
- GOVAERTS, R.; FRODIN, D. G. & RADCLIFFE-SMITH, A. 2000. *Acalypha*. In: *World checklist and bibliography of Euphorbiaceae (and Pandaceae)*, The Board of Trustees of the Royal Botanic Gardens, Kew 1: 43-109.
- LEVIN, G. A. 2008. *Acalypha*. In: O. Hokche; P. E. Berry & O. Huber (Eds.), *Nuevo catálogo de la flora vascular de Venezuela*, Fundación Instituto Botánico de Venezuela Dr. Tobías Lasser. Caracas, Venezuela.
- MARTÍNEZ-GORDILLO, M.; JIMÉNEZ, J.; CRUZ, R.; JUÁREZ, E.; GARCÍA, R.; CERVANTES, A. & MEJÍA, R. 2002. Los géneros de la familia *Euphorbiaceae* en México. *Anales Inst. Biol. Univ. Nac. Autón. México, Bot.* 73(2): 155-281.
- MARTÍNEZ-GORDILLO, M. & MORRONE, J. J. 2005. Patrones de endemismo y disyunción de los géneros de *Euphorbiaceae* sensu lato: un análisis panbiogeográfico. *Bol. Soc. Bot. Méx.* 77: 21-33.
- MURILLO, J. 2004. Las *Euphorbiaceae* de Colombia. *Biota Colombiana* 5(2): 183-200.
- PAX, F. A. & HOFFMANN, K. 1924. *Euphorbiaceae-Crotonoideae-Acalyphaeae-Acalyphinae*. In: A. Engler (Ed.), *Das Pflanzenreich*, 4: 147 XVI (Heft. 85). 1-178.
- SIMON, R.; FUENTES, A. F. & SPOONER, D. M. 2011. Biogeographic implications of the striking discovery of a 4,000 kilometer disjunct population of the wild potato *Solanum morelliforme* in South America. *Syst. Bot.* 36(4): 1062-1067.
- SOLBRIG, O. T. 1972. The floristic disjunctions between the «Monte» in Argentina and the «Sonoran Desert» in Mexico and the United States. *Ann. Missouri Bot. Gard.* 59: 218-223.
- STEINMANN, V. W. 2002. Diversidad y endemismo en la familia *Euphorbiaceae* en México. *Acta. Bot. Méx.* 61: 61-93.
- VAN EE, B. & BERRY, P. E. 2011. *Croton* Section *Pedicellati* (*Euphorbiaceae*), a novel new world group, and a new subsectional classification of *Croton* Section *Amprocroton*. *Syst. Bot.* 36(1): 88-98.